



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.            |
|--|-------------|----------------------|---------------------------------|-----------------------------|
| 10/599,468   | 04/05/2007  | Yusaku Yoshimatsu    | 40404.60/ko                     | 9414                        |
| 54968  | 7590        | 02/22/2010           |                                 |                             |
| ROHM CO., LTD.<br>C/O KEATING & BENNETT, LLP<br>1800 Alexander Bell Drive<br>SUITE 200<br>Reston, VA 20191 |             |                      | EXAMINER<br>HAGAN, SEAN P       |                             |
|  |             |                      | ART UNIT<br>2828                | PAPER NUMBER                |
|  |             |                      | NOTIFICATION DATE<br>02/22/2010 | DELIVERY MODE<br>ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM  
uspto@kbiplaw.com  
epreston@kbiplaw.com

# Office Action Summary

**Application No.**

10/599,468

**Applicant(s)**

YOSHIMATSU, YUSAKU

**Examiner**

SEAN HAGAN

**Art Unit**

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1 through 10 originally filed 29 September 2006. Claims 1 through 10 cancelled by preliminary amendment received 29 September 2006. Claims 11 through 24 added by preliminary amendment received 29 September 2006. Claims 11, 12, 18, and 22 amended by amendment received 6 November 2009. Claims 11 through 24 are pending in this application.

### ***Drawings***

2. As stated in the previous action, Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Response to Arguments***

3. Applicant's arguments have been fully considered; they are not persuasive.

4. Applicants argue that the portion amended to be included in independent claims renders the claims non-obvious in light of the prior art of record. The distinction over the

prior art appears to be that the switch claimed is powered by external sources in the prior art rather than the claimed internal power supply. Examiner had recognized this distinction previously and did not rely on the prior art to teach this feature. Instead, this feature was addressed as a matter of obvious design choice, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well so long as the elements are powered. In arguing that the prior art did not teach this feature, applicants have still not mentioned what benefit this feature performs in the present invention and the determination that it is a matter of obvious design choice has yet to be overcome. As such, the rejection is maintained.

5. As such, all claims are addressed as follows:

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 11, 16, 21, 22, and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (Yoshikawa, US Patent 5,163,063) in view of Kaplan (US Patent 4,785,456).
8. ***Regarding claim 11***, Yoshikawa discloses, "A laser element arranged to vary a light intensity corresponding to a current that flows thereto" (col. 3-4, lines 48-3). "A photodetection element arranged to monitor and convert the light intensity of the laser

element to electric signals" (col. 3-4, lines 48-3). "An emission control switch arranged to control the current flowing to the laser element" (col. 3-4, lines 48-3). "A feedback amplifier arranged to control the emission control switch by feeding back electric signals of the photodetection element" (col. 3-4, lines 48-3). "A power source switch arranged between a power source and an inner power source" (col. 3-4, lines 48-3). "Which opens and closes corresponding to intermittent control signals" (col. 3-4, lines 48-3). Yoshikawa does not disclose, "An emission control switch controlling circuit arranged to determine as abnormal a current flowing continuously to the laser element for a predetermined time from the beginning of light emission of the laser element and to turn OFF the emission control switch." Kaplan discloses, "An emission control switch controlling circuit arranged to determine as abnormal a current flowing continuously to the laser element for a predetermined time from the beginning of light emission of the laser element and to turn OFF the emission control switch" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Yoshikawa with the teachings of Kaplan. Detection and prevention of the laser operating outside of a designated discharge program as taught by Kaplan would enhance the teachings of Yoshikawa by providing additional factors by which abnormality may be determined.

9. The combination of Yoshikawa and Kaplan does not disclose, "The inner power source supplying power to the emission control switch and the feedback amplifier." It would have been a matter of obvious design choice to power all of the relevant circuits with switch regulated power source, since applicant has not disclosed that this

difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well so long as the elements are powered.

10. **Regarding claim 16**, Yoshikawa discloses, "Wherein the emission control switch controlling circuit includes an emission stop switch and is arranged to turn OFF the emission control switch by turning ON the emission stop switch" (col. 7, lines 37-43).

11. **Regarding claim 21**, Yoshikawa does not disclose, "Wherein oscillation of the oscillator is stopped when the abnormality has been determined." Kaplan discloses, "Wherein oscillation of the oscillator is stopped when the abnormality has been determined" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Yoshikawa with the teachings of Kaplan for the reasons provided above regarding claim 11.

12. The combination of Yoshikawa and Kaplan does not disclose, "An oscillator arranged to output a reference clock for counting the predetermined time from the beginning of light emission of the laser element up to the determination of abnormality." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize an oscillator for timing, since clock circuits for the purposes of generating triggering events were known in the art.

13. **Regarding claim 22**, the combination of Yoshikawa and Kaplan does not disclose, "Wherein the inner power source supplies power to the emission stop switch."

It would have been a matter of obvious design choice to power all of the relevant circuits with switch regulated power source, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well so long as the elements are powered.

14. The combination of Yoshikawa and Kaplan does not disclose, "A current drive capacity of the emission stop switch is higher than a current drive capacity of a sink current side on the feedback amplifier." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize a switch whose drive current capacity is sufficient for proper operation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

15. **Regarding claim 23**, Yoshikawa discloses, "Wherein when the counter reaches the predetermined count the fail-safe circuit is arranged to determine an abnormality and output a signal that causes the emission stop switch to turn ON" (col. 7, lines 37-43). Yoshikawa does not disclose, "A fail-safe circuit which includes a counter arranged to start from a rise of the inner power source." Kaplan discloses, "A fail-safe circuit which includes a counter arranged to start from a rise of the inner power source" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Yoshikawa with the teachings of Kaplan for the reasons provided above regarding claim 11.

16. The combination of Yoshikawa and Kaplan does not disclose, "To count the number of the reference clock of the oscillator." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize an oscillator for timing, since clock circuits for the purposes of generating triggering events were known in the art.

17. Claim 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Kaplan and further in view of Davis (US Patent 5,276,697).

18. **Regarding claim 24**, Yoshikawa discloses, "A soft-start circuit which includes a counter arranged to start from the change of the intermittent control signal when the power source switch is closed" (col. 20, lines 24-29).

19. The combination of Yoshikawa and Kaplan does not disclose, "Wherein when the counter reaches the predetermined count the soft-start circuit outputs a signal that turns OFF the emission stop switch so that a capacitor of the emission control switch controlling circuit discharges." Davis discloses, "Wherein when the counter reaches the predetermined count the soft-start circuit outputs a signal that turns OFF the emission stop switch so that a capacitor of the emission control switch controlling circuit discharges" (Fig. 2, pts. 14 and 35). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of the combination of Yoshikawa and Kaplan with the teachings of Davis. Implementation of a state change delay circuit as utilized by Davis would enhance the teachings of Yoshikawa and Kaplan by providing a process by which signal irregularities are mitigated.



20. The combination of Yoshikawa, Kaplan, and Davis does not disclose, "Counts the number of the reference clock of the oscillator." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize an oscillator for timing, since clock circuits for the purposes of generating triggering events were known in the art.

21. Claims 12 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Davis.

22. **Regarding claim 12**, Yoshikawa discloses, "A laser element arranged to vary a light intensity corresponding to a current that flows thereto" (col. 3-4, lines 48-3). "A photodetection element arranged to monitor and convert the light intensity of the laser element to electric signals" (col. 3-4, lines 48-3). "An emission control switch arranged to control the current flowing to the laser element" (col. 3-4, lines 48-3). "A feedback amplifier arranged to control the emission control switch by feeding back electric signals of the photodetection element" (col. 3-4, lines 48-3). "A power source switch arranged between a power source and an inner power source" (col. 3-4, lines 48-3). "Which opens and closes corresponding to intermittent control signals" (col. 3-4, lines 48-3). Yoshikawa does not disclose, "When the laser element begins to emit light, an emission control switch controlling circuit arranged to control the emission control switch such that the current flowing to the laser element is gradually increased." Davis discloses, "When the laser element begins to emit light, an emission control switch controlling circuit arranged to control the emission control switch such that the current flowing to

the laser element is gradually increased" (Fig. 2, pts. 14 and 35). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Yoshikawa with the teachings of Davis. Implementation of a state change delay circuit as utilized by Davis would enhance the teachings of Yoshikawa by providing a process by which signal irregularities are mitigated.

23. The combination of Yoshikawa and Davis does not disclose, "The inner power source supplying power to the emission control switch and the feedback amplifier." It would have been a matter of obvious design choice to power all of the relevant circuits with switch regulated power source, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well so long as the elements are powered.

24. **Regarding claim 14**, Yoshikawa discloses, "Arranged such that when the laser element begins to emit light the emission control switch is forced to turn OFF" (col. 5, lines 53-61). "The emission control switch is controlled by turning the emission stop switch OFF and discharging the capacitor" (col. 5, lines 53-61). "Then the current flowing to the laser element is gradually increased" (col. 20, lines 24-29). Yoshikawa does not disclose, "Wherein the emission control switch controlling circuit includes a capacitor and an emission stop switch." "The capacitor is charged by turning the emission stop switch ON after a predetermined time has elapsed." Davis discloses, "Wherein the emission control switch controlling circuit includes a capacitor and an emission stop switch" (Fig. 2, pts. 14 and 35). "The capacitor is charged by turning the

emission stop switch ON after a predetermined time has elapsed" (Fig. 2, pts. 14 and 35). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Yoshikawa with the teachings of Davis for the reasons provided above regarding claim 12.

25. Claims 13, 15, 17, 18, 19, and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Davis and further in view of Kaplan.

26. **Regarding claim 13**, the combination of Yoshikawa and Davis does not disclose, "Wherein the emission control switch controlling circuit is arranged to determine as abnormal a current flowing continuously to the laser element for a predetermined time from the beginning of light emission of the laser element to turn OFF the emission control switch." Kaplan discloses, "Wherein the emission control switch controlling circuit is arranged to determine as abnormal a current flowing continuously to the laser element for a predetermined time from the beginning of light emission of the laser element to turn OFF the emission control switch" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of the combination of Yoshikawa and Davis with the teachings of Kaplan. Detection and prevention of the laser operating outside of a designated discharge program as taught by Kaplan would enhance the teachings of Yoshikawa and Davis by providing additional factors by which abnormality may be determined.

27. **Regarding claim 15**, Yoshikawa discloses, "To turn OFF the emission control switch by turning ON the emission stop switch" (col. 7, lines 37-43).

28. The combination of Yoshikawa and Davis does not disclose, "Wherein the emission control switch controlling circuit is arranged to determine as abnormal a current flowing continuously to the laser element for a predetermined time from the beginning of light emission of the laser element." Kaplan discloses, "Wherein the emission control switch controlling circuit is arranged to determine as abnormal a current flowing continuously to the laser element for a predetermined time from the beginning of light emission of the laser element" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of the combination of Yoshikawa and Davis with the teachings of Kaplan for the reasons provided above regarding claim 13.

29. **Regarding claim 17**, the combination of Yoshikawa and Davis does not disclose, "Wherein oscillation of the oscillator is stopped when the abnormality has been determined." Kaplan discloses, "Wherein oscillation of the oscillator is stopped when the abnormality has been determined" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of the combination of Yoshikawa and Davis with the teachings of Kaplan for the reasons provided above regarding claim 13.

30. The combination of Yoshikawa, Davis, and Kaplan does not disclose, "An oscillator arranged to output a reference clock for counting the predetermined time from

the beginning of light emission of the laser element up to the determination of abnormality." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize an oscillator for timing, since clock circuits for the purposes of generating triggering events were known in the art.

31. **Regarding claim 18**, the combination of Yoshikawa, Davis, and Kaplan does not disclose, "Wherein the inner power source supplies power to the emission stop switch." It would have been a matter of obvious design choice to power all of the relevant circuits with switch regulated power source, since applicant has not disclosed that this difference solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well so long as the elements are powered.

32. The combination of Yoshikawa, Davis, and Kaplan does not disclose, "A current drive capacity of the emission stop switch is higher than a current drive capacity of a sink current side on the feedback amplifier." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize a switch whose drive current capacity is sufficient for proper operation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

33. **Regarding claim 19**, Yoshikawa discloses, "Wherein when the counter reaches the predetermined count the fail-safe circuit is arranged to determine an abnormality

and output a signal that causes the emission stop switch to turn ON" (col. 7, lines 37-43).

34. The combination of Yoshikawa and Davis does not disclose, "A fail-safe circuit which includes a counter arranged to start from a rise of the inner power source." Kaplan discloses, "A fail-safe circuit which includes a counter arranged to start from a rise of the inner power source" (col. 7, lines 42-49). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of the combination of Yoshikawa and Davis with the teachings of Kaplan for the reasons provided above regarding claim 13.

35. The combination of Yoshikawa, Davis, and Kaplan does not disclose, "To count the number of the reference clock of the oscillator." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize an oscillator for timing, since clock circuits for the purposes of generating triggering events were known in the art.

36. **Regarding claim 20**, Yoshikawa discloses, "A soft-start circuit which includes a counter arranged to start from the change of the intermittent control signal when the power source switch is closed" (col. 20, lines 24-29). Yoshikawa does not disclose, "Wherein when the counter reaches the predetermined count the soft-start circuit outputs a signal that turns OFF the emission stop switch so that the capacitor of the emission control switch controlling circuit discharges." Davis discloses, "Wherein when the counter reaches the predetermined count the soft-start circuit outputs a signal that turns OFF the emission stop switch so that the capacitor of the emission control switch

controlling circuit discharges" (Fig. 2, pts. 14 and 35). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Yoshikawa with the teachings of Davis for the reasons provided above regarding claim 12.

37. The combination of Yoshikawa, Davis, and Kaplan does not disclose, "Counts the number of the reference clock of the oscillator." It would have been obvious to one of ordinary skill in the art at the time of invention to utilize an oscillator for timing, since clock circuits for the purposes of generating triggering events were known in the art.

### ***Conclusion***

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

39. Yasuda (US Patent 4,845,572) which, in lines 15 through 22 of column 5, teaches the use of a backup power supply to power all components in the case of a power interruption.

40. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

41. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN HAGAN whose telephone number is (571)270-1242. The examiner can normally be reached on Monday-Friday 7:30 - 5:00.

43. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun O. Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

44. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Application/Control Number: 10/599,468  
Art Unit: 2828

Page 16

/S. H./  
Examiner, Art Unit 2828

/Minsun Harvey/  
Supervisory Patent Examiner, Art Unit 2828